

Remarks

In the Office Action mailed August 19, 2002, the Examiner noted several alleged difficulties with the previous priority claim.

Claim 28 was rejected under § 112, second paragraph.

Claims 1-3, 5, 7, 9, 12-14, 16, 19-23 and 25 were rejected under § 102(e), or in the alternative under § 103(a), based on U.S. Patent 5,980,396 to Moriyama et al.

Claims 1-3, 6-15, 17-22, 26, and 28 were rejected under § 102(e), or in the alternative under § 103(a), based on U.S. Patent 6,045,460 to Hayashi et al.

Claims 1-3, 6-15, 17-22, 26 and 28 were rejected under § 102(e), or in the alternative under § 103(a), based on U.S. Patent 5,885,172 to Hebert et al.

Claims 19-25 were rejected under § 103(a) based upon the '396 patent to Moriyama, the '460 patent to Hayashi, or the '172 patent to Hebert, in view of U.S. Patent 6,306,049 to Rajagopalan or U.S. Patent 5,833,553 to Sullivan et al.

Claims 26-28 were rejected under § 103(a) based upon the '460 patent to Hayashi in view of U.S. Patent 6,083,119 to Sullivan et al.

Claims 1-15, 18-23, 25, 26 and 28 were rejected under § 102(e), or in the alternative under § 103(a), based upon U.S. Patent 5,779,562 to Melvin et al.

In view of the clarifying amendments and explanations set forth herein, it is respectfully urged that all pending claims 1-17 and 19-28 are in condition for allowance.

A. The Priority Claim

The Examiner's previous concerns over the priority claim in this application have been addressed. A revised claim is submitted. It is believed that this ground of objection has been remedied.

B. Rejection of Claim 28 Under § 112 Has Been Remedied

In support of this ground of rejection, the Examiner contended:

Claim 28 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim does not indicate where or when the isocyanate is added.

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Dependent claim 28 has been amended, and is now believed to be in condition for allowance.

C. Rejection of Claims 1-3, 5, 7, 9, 12-14, 16, 19-23 and 25 Under § 102(e) or § 103(a) Based Upon the '396 Patent to Moriyama Must Be Withdrawn

The Examiner argued in this regard:

Moriyama exemplifies (table 5, 6) four layer golf balls having tungsten in the center core and a polyurethane outer cover. The polyurethane outer cover has a shore D of 71-72. The layer immediately inside the outer cover has a shore C of 54-57. These shore C values convert to a lower numerical value on the shore D scale (see applicant's own correlation col. 5 line 54 of U.S. 6057403).

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Independent claim 1 has been amended to more clearly identify and distinguish the present invention. Claim 1 now specifically recites that the outer cover layer comprises a polyurethane material. The multi-layer golf balls disclosed by Moriyama et al. in the '396 patent, e.g. in Tables 5 and 6, all utilize ionomers in their outer covers. In point of fact, the '396 patent to Moriyama et al. entirely fails to disclose or even suggest the use of a polyurethane material in an outer cover of a golf ball. Furthermore, if one followed the teachings of the '396 patent, one would be instructed to utilize an ionomeric material instead of a polyurethane material in the outer cover. Thus, the '396 patent teaches away from the subject matter of the pending claims. Accordingly, claim 1 and claims 2-3, 5, 7, 9, 12-14 and 16, all dependent therefrom, are patentable over the '396 patent to Moriyama.

Independent claim 19 expressly recites that the outer cover layer comprises a polyurethane material. As previously noted, the '396 patent to Moriyama et al. completely fails to disclose or even suggest such. For at least these reasons, claim 19 and claims 20-23 and 25 dependent therefrom, are patentable over the '396 patent.

D. Rejection of Claims 1-3, 6-15, 17-22, 26, 28 Under § 102(e) or § 103(a) Based Upon the '460 Patent to Hayashi Must Be Withdrawn

In support of this rejection, the Examiner asserted:

Hayashi exemplifies (#1-3) four layer golf balls having barium sulfate in the center core, with a urethane outer cover. The outer cover is significantly softer than the inner cover.

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Independent claims 1, 19 and 26 have been amended to further distinguish the present invention from the cited art. These claims now recite that the core layer, surrounding the center core component, is free of any "density adjusting filler material." The term "density adjusting filler material" as used in the present application refers to filler materials known in the art and as set forth in Table 19 on pages 55-57 of the specification. That is, the dual core assemblies of the present invention golf balls, utilize density adjusting filler material in only the center core component, and do not employ such in the core layer. This strategy results in core assemblies that exhibit significantly different rotational inertia characteristics as compared to the core assemblies disclosed in the '460 patent. The '460 patent strongly teaches the use of "high specific gravity inorganic fillers" and expressly teach the incorporation of those fillers in a core layer (see Fig. 1; col. 3, lines 12-15 and 44-46; and col. 4, lines 24-32).

Although the '460 patent mentions in passing that "inert filler" (as opposed to "high specific gravity inorganic fillers") may be used in the inner sphere 3, it is quite clear that the teaching of using heavy weight fillers by the '460 patent, is to incorporate those fillers in a core layer as opposed to the inner core. Thus, it goes against the teachings of the '460 patent to provide a core layer that is free of any density adjusting filler material.

Accordingly, independent claim 1 and claims 2-3, 6-15, and 17 dependent therefrom; independent claim 19 and claims 20-22 dependent therefrom; and independent claim 26 and claim 28 dependent therefrom are all patentable over the '460 patent to Hayashi et al.

E. Rejection of Claims 1-3, 6-15, 17-22, 26 and 28 Under § 102(e) or § 103(a) Based Upon the '172 Patent to Hebert Must Be Withdrawn

The Examiner contended that:

Herbert discloses a four layer golf ball having a urethane outer cover. This outer cover is significantly harder than the inner cover (claims 3 and 5). Density adjusting can be present in the core (col. 7, line 18).

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Independent claims 1, 19, and 26 have each been amended to further distinguish the present invention from the cited art. Claim 1 now specifically recites that the outer cover layer is formed from a thermoplastic polyurethane. This is in

contrast to the disclosure of the '172 patent to Hebert et al. The '172 patent repeatedly describes that the outer cover of the golf balls described therein are formed from a thermoset material, see Abstract; col. 1, line 9; col. 3, lines 54 and 62; and col. 4, lines 63-64. Additionally, claims 19 and 26 require that the outer polyurethane cover layer is softer than the inner cover layer. This is contrary to Hebert et al.

For at least these reasons, all of claims 1-3, 6-15, 17, 19-22, 26, and 28 are patentable over the '172 patent to Hebert et al.

F. The Rejection of Claims 19-25 Under § 103(a) Based Upon the '396 Patent to Moriyama, the '460 Patent to Hayashi, or the '172 Patent to Hebert in view of the '049 Patent to Rajagopalan or the '553 Patent to Sullivan Must Be Withdrawn

In support of this ground of rejection, the Examiner argued:

The three primary references suggest high density fillers in their cores, but do not suggest all the species named by applicant.

Rajagopalan (col. 7, line 25) and Sullivan (col. 3 line 21) suggest titanium, tungsten etc all function as density adjusting fillers in golf ball cores. It would have been obvious to use any of the listed fillers in the cores of Moriyama/Hayashi/Herbert to adjust their density.

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Neither the '049 patent to Rajagopalan nor the '553 patent to Sullivan et al. remedy the deficiencies of the '396 patent to Moriyama, the '460 patent to Hayashi, or the '172 patent to Hebert. As previously explained, independent claim 19 has been amended to recite that the core layer is free of any density adjusting filler material. Neither the '049 patent nor the '553 patent discloses a core layer. And so, neither patent discloses a core layer that is free of any density adjusting filler material. Moreover, claim 1 has been further amended to recite that the outer cover layer comprises a thermoplastic polyurethane. Additionally, claims 19 and 26 require the inner cover layer to be harder than the softer outer polyurethane cover layer. Neither the '049 patent nor the '553 patent discloses one or more of these aspects.

For at least these reasons, claims 19-25 are patentable over the cited combination of patents.

G. The Rejection of Claims 26-28 Under § 103(a) Based Upon the '460 Patent to Hayashi in View of the '119 Patent to Sullivan Must Be

Withdrawn

For this ground of rejection, the Examiner asserted:

Hayashi does not explain what molding technique was used to place the urethane cover on the ball. Compression molding, reaction injection molding etc (co. 23 line 12 of Sullivan) are all well known molding techniques for forming golf ball covers. Reaction injection molding is particularly useful for urethanes (claim 14 of Sullivan).

It would have been obvious to use any common molding technique to place the urethane cover on Hayashi's ball.

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As previously discussed, claim 26 has been amended, in part, to specifically recite that the core layer that is formed about the center core component is free of any density adjusting filler material. Neither the '460 patent to Hayashi et al. nor the '119 patent to Sullivan et al. teach or even suggest this unique aspect.

Furthermore, the Examiner is respectfully reminded that the proper standard of review under § 103 is not "it would have been obvious" (citations omitted).

For at least these reasons, claims 26-28 are patentable over the cited patents.

H. The Rejection of Claims 1-15, 18-23, 25, 26, and 28 Under § 102(e) or § 103(a) Based Upon the '562 Patent to Melvin Must Be Withdrawn

The Examiner contended in support of this rejection that:

Melvin discloses four layer golf balls. The cover can be polyurethane (col. 18 line 37-53). The inner core can be thermoplastic (col. 5, line 32) and contain tungsten filler (col. 7, line 55).

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Each of the independent claims 1, 19, and 26 has been amended to specifically recite that the core layer is "free of any density adjusting filler material." The '562 patent to Melvin et al. entirely fails to disclose or teach this feature. In contrast, Melvin et al. repeatedly describe incorporating density adjusting filler materials in their golf balls, see col. 7, lines 38-41, and 62-66; col. 8, lines 7-9; and col. 9, lines 1-4.

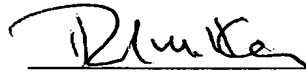
In view of these distinguishing differences, all of claims 1-15, 18-23, 25, 26, and 28 are patentable over the '562 patent to Melvin et al.

I. Conclusion

In view of the foregoing, it is respectfully urged that all pending claims 1-17 and 19-28 are in condition for allowance.

Respectfully submitted,

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Version Showing Changes Made

This application is a continuation-in-part of U.S. Application Serial No. 09/562,773 filed on May 2, 2000; which is a continuation of U.S. Application Serial No. 09/049,410 filed on March 27, 1998, now U.S. Patent No. 6,057,403[,]; which is a continuation-in-part of U.S. Application Serial No. 08/926,872 filed on September 10, 1997[,]; which is a divisional of U.S. Application Serial No. 08/631,613 filed on April 10, 1996, now U.S. Patent No. 5,803,831; which [in turn] is a continuation-in-part of U.S. Application Serial No. 08/591,046 filed on January 25, 1996, now abandoned; and a continuation-in-part of U.S. Application Serial No. 08/542,793 filed on October 13, 1995, now abandoned; which [in turn] is a continuation-in-part of U.S. Application Serial No. 08/070,510 filed June 1, 1993, now abandoned. This application is also a continuation-in-part of U.S. Application Serial No. 08/870,585 filed on June 6, 1997, now abandoned; which is a continuation of U.S. Application Serial No. 08/556,237 filed on November 9, 1995; which is a continuation-in-part of U.S. Application Serial No. 08/542,793 filed October 13, 1995, now abandoned; which is a continuation-in-part of U.S. Application Serial No. 08/070,510 filed on June 1, 1993, now abandoned. [This application also claims priority on U.S. provisional patent Application Serial No. 60/042,439 filed March 28, 1997.]

1. (Amended) A golf ball comprising:
a dual core assembly including (i) a center core component and (ii) a core layer disposed about said center core component, said center core component having at least one density adjusting filler material dispersed throughout a polymeric material, and said core layer free of any density adjusting filler material; and
a multi-layer cover assembly including (i) an inner cover layer disposed on said dual core assembly and (ii) an outer cover layer disposed on said inner cover layer, [at least one of said inner cover layer and] said outer cover layer comprising a thermoplastic polyurethane material, and said inner cover layer and said outer cover layer exhibiting a hardness differential of at least 5, as measured on the Shore D scale.

19. (Amended) A golf ball comprising:

a center core component including a polymeric material and at least one density-increasing filler material having a specific gravity in the range of from about 1.0 to about 20.0;

a core layer disposed about said center core component, said core layer having a composition different than said center core component and free of any density adjusting filler material;

an inner cover layer disposed on said core layer, said inner cover layer having a thickness of from about 0.01 inches to about 0.10 inches;

an outer cover layer disposed on said inner cover layer, said outer cover layer having a thickness of from about 0.01 inches to about 0.10 inches, said outer cover layer comprising a polyurethane material;

wherein the inner cover is harder than the outer cover and wherein the hardness differential between said inner cover layer and said outer cover layer is at least 5 on the Shore D scale.

26. (Amended) A method of forming a golf ball, said method comprising the steps of:

providing a density adjusting filler material;

providing a polymeric core material suitable for use in a golf ball core;

mixing said density adjusting filler material and said polymeric core material and forming a center core component;

providing a core layer material having a composition different than the composition of said center core component and free of any density adjusting filler material;

forming a core layer from said core layer material about said center core component;

providing an inner cover material;

forming an inner cover layer from said inner cover material on said core layer;

selecting a polyurethane material adapted for use in an outer cover layer such that upon curing said inner cover layer and said outer cover layer, the inner cover is harder than the outer cover, the hardness differential between said inner cover layer and said outer cover layer is at least 5; and

forming an outer cover layer on said inner cover layer to thereby form said golf ball.

28. (Amended) The method of claim 26 wherein said [method further comprises] step of selecting said polyurethane material is performed by :

providing an isocyanate component;

providing a component adapted for reacting with said isocyanate component selected from the group consisting of a polyether component, a polyester component, a polyol component, a polyamine component, and combinations thereof[.];

reacting said isocyanate component and said component adapted for reacting with said isocyanate component to thereby form said polyurethane material.